

Report from JEM-EUSO in the US

by

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Current Status

- We have no financial support from NASA Headquarters
- We only have funding to attend this meeting

Discussions with NASA HQ

- Head of the Astrophysics Division (Jon Morse)
 - He recognizes that JEM-EUSO reviewed well when it was proposed in the US.
 - He suggested we propose for Astronomy and Physics Research and Analysis (APRA) funding in the spring of 2010.
 - He told that an Announcement of Opportunity (AO) is being planned for release in the summer of 2010.
 - He said he will be guided in selecting proposals to this AO by the recommendations from the Decadal Survey.

Decadal Survey

- Every 10 years NASA asks the National Research Council (NRC) to survey astrophysics and recommend research directions to NASA
 - A team lead by Angela Olinto put in a white paper making the case for EECR research
 - The recommendations on this and other research initiatives will be in the NRC report to be released in the summer of 2010.

Technology Innovation Program

- This is an internal MSFC program
 - Proposals are solicited annually
 - Requirements for a successful proposal
 - Technically sound proposal for innovation
 - Demonstration that the technology innovation has a reasonably prospect of leading to a research project for MSFC
 - Certainly plans for developing the technology needed for JEM-EUSO are technically sound.
 - Demonstration of the prospects for NASA-HQ support will depend on the results of the Decadal Survey.

Proposal Plans

- **APRA Proposal**
 - Proposal Deadline: March 26, 2010
 - Selections announced: September, 2010
 - First funding received: October, 2010
- **TIP Proposal**
 - Proposal Deadlines:
 - Step 1: June 25, 2010
 - Step 2: July 27, 2010
 - Selections announced: August 17, 2010
 - First Funding received: 1 October, 2010

Proposal Plans (continued)

- NASA AO – Mission of Opportunity Proposal
 - AO Release – Summer 2010
 - Proposals Due – Fall 2010
 - Selections announced: Summer 2011
 - Phase A Study:
 - We will argue that we do not need a Phase A Study
 - First funds received
 - Late Summer or early fall of 2011

What to Propose?

- APRA and TIP Proposals
 - Testing breadboard optics
 - Scaling up the Agiltron anti-reflective coating process?

What to Propose to the AO?

- **Mission of Opportunity Proposal**
 - Provide the optics
 - Procurement of the prototype and flight lenses from Ikegami
 - Ikegami will be responsible to meet specifications
 - Full aperture optical testing and metrology of both sets of lenses
 - Provide the ground light sources and
 - Make contributions to:
 - The optics design
 - The trigger design
 - Event reconstruction software
 - Cross-correlations with other data
 - Source location and error analysis software
 - Signal analysis architecture
 - Prediction of neutrino delectability
 - Simulations of air showers and instrument performance
 - Theory and interpretation of results
 - Education and public outreach.

Optional Items to Propose

- Agiltron anti-reflective coating
- Preflight testing of JEM-EUSO Payload*
 - Thermal-vacuum testing
 - Operate deployment/stowing mechanism
 - Operate aperture door
 - Full aperture optical testing
 - Acoustic testing
 - Shock and Vibration testing
- Provide deployment mechanism*

*There is not room in the budget to add these items.

Ground Light Source Details

- The US will design, develop, manufacture, and test the ground light sources (GLSs).
- The US will deploy, maintain and operate the GLSs.
- The US will analyze the data on GLS passes from the GLSs and from JEM-EUSO to provide ground truth on the signal strength measured by JEM-EUSO.

Discussion

- We, in the US, are requesting your opinion of what we should include in our proposals considering:
 - No funds will be available before 1 October 2010
 - Even then, not more than \$1,000,000 will be available
 - The Mission of Opportunity Proposal will not provide funds before late summer or fall of 2011
 - Probably not more that \$40,000,000 total will be available

Conclusions

- I am sensing more support for JEM-EUSO from both NASA Headquarters and NASA-MSFC.
- We have already requested that MSFC's Science and Mission Systems Directorate reserve "Bid and Proposal" money for the AO proposal.
- We intend to submit three proposals to secure funds for US participation in JEM-EUSO.
- The US team is committed to make every effort to win these proposals.